

REMARKS

Applicant respectfully requests reconsideration of the present application based on the foregoing amendments and the following remarks. In the Office Action claims 1-27 stand rejected under 35 U.S.C. 103(a) (as noted by the Examiner on page 2) In this amendment, Applicant amends claims 11, 21, 24 and 27 and respectfully traverses the rejections of claims 1-27 as explained below. Upon entry of this amendment, claims 1-27 will be pending of which, claims 1, 11, 21, 24 and 27 are independent claims.

In the Office Action, claims 1-3, 8-9, 11-13, 18-19, 21-22 and 24-25 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Patent No. 6,636,933 to MacLellan et al. (MacLellan) in view of U.S. Patent No. 5,394,551 to Holt et al. (Holt). Further, the Examiner rejects claim 27 as being unpatentable over MacLellan and Holt in view of Official Notice. As amended, each of the independent claims requires a hardware semaphore unit. MacLellan and Holt do not teach, suggest or render obvious a hardware semaphore unit as recited in the claims.

The Office Action states that "MacLellan also teaches semaphores for signaling however MacLellan is silent as to how the Semaphores are implemented." OA at page 2. Applicant respectfully submits that the MacLellan teaching is not relevant to the presently claimed invention. Further, Applicant submits that MacLellan teaches away from a hardware semaphore unit and would have provided no motivation for combining MacLellan with Holt.

Nowhere does MacLellan teach a resource controller including a hardware semaphore unit for controlling access to shared resources, as required in claims 1, 11, 21 or a hardware semaphore unit for controlling access to one or more peripheral resources, as required in claim

24 or a hardware semaphore unit for prioritizing access to the set of memory resources as required in claim 27. Semaphores are mentioned in MacLellan for the sole purpose of describing the content of a serial data stream. MacLellan at Col. 14, lines 25-46. Specifically, MacLellan states that serial-to-parallel converters "convert between a serial stream of information (i.e., data, address, and control, Cyclic Redundancy Checks (CRCs), signaling semaphores, etc.)..." MacLellan at Col. 14, lines 31-33. The MacLellan semaphores are explicitly taught as serial protocol semaphores embedded in a serial data transmission such that "first word 0 is shown to include protocol signaling (e.g. semaphore) and a terminating 'start-frame' indication." MacLellan at col. 14, lines 43-45. MacLellan does not teach in any manner how these serial protocol semaphores would be created and used. It cannot reasonably be said that MacLellan teaches, suggests or otherwise describes a semaphore unit for controlling or prioritizing access to resources. Therefore, regardless of the teachings of Holt, there would have been no motivation for a person of ordinary skill in the art to combine MacLellan and Holt to derive a hardware semaphore unit for controlling access to shared resources as recited in the claims of the present Application.

Nor does Holt teach a hardware semaphore unit. Holt is directed to a distributed processing system in which networked processing nodes maintain local copies of semaphore information. See, generally Holt Abstract and col. 1, line 57 to col. 2 line 20. Holt is silent on the components and structure of semaphore units located in the nodes. Holt merely teaches a system in which each of a plurality of nodes maintains a local copy of semaphore locations, semaphore ownership table and semaphore queue, the semaphore units in the different nodes communicating with each other by means of semaphore messages sent over a network. Holt at col. 2, lines 62-65 and col. 3, lines 63-65. It would have been appreciated by one of ordinary

skill in the art that multi-node processors maintaining synchronized tables, each node capable of requesting semaphore operations as taught in Holt are most clearly directed to a software-based semaphore method. The conclusion that Holt teaches a software based system is corroborated in Holt's teaching of an increment and test request and a test and decrement request, both operations being atomic, in the sense that they may not be interrupted by another operation. Holt at col. 3 lines 1-18. By inference, if Holt contemplates a need to provide certain atomic, uninterruptible operations, then Holt clearly provides semaphore operations that are interruptible. Interruptible semaphore operations in a distributed processing system are indicative of a software-based system of semaphore management. Thus, it can most reasonably be said that Holt teaches towards a software implementation of a semaphore unit and away from a hardware semaphore unit. Because Holt does not provide explicit teachings of a hardware semaphore unit and teaches away from a hardware semaphore unit, Holt cannot be said to cure the deficiencies of MacLellan. Therefore, the rejections of claims 1, 11, 21, 24 and 27 are improper and Applicant respectfully requests withdrawal of these rejections.

Claims 1-3 also stand rejected under 35 U.S.C. 103(b) (Applicant reads 35 U.S.C. 103(a)) as allegedly being unpatentable over U.S. Patent No. 5,053,942 to Srini (Srini). Srini never mentions the use of semaphores anywhere in its written description and, consequently, it is not reasonable to suggest that one of ordinary skill in the art would have been motivated to combine Srini and Holt to obtain a hardware semaphore unit. Such motivation is even more improbable given that Holt does not teach a hardware semaphore unit. As shown above, Holt teaches a software implementation of a semaphore unit. Therefore, Applicant respectfully submits that the rejections of claims 1-3 should be withdrawn.

Claims 1-3, 8-9, 11-13, 18-19, 21-22 and 24-25 stand rejected under 35 U.S.C. 103(e) (Applicant reads 35 U.S.C. 103(a)) as allegedly being unpatentable over U.S. Patent No. 6,125,429 to Goodwin et al. (Goodwin) in view of Holt. Claim 27 stands rejected as allegedly being unpatentable over Goodwin in view of Holt and further in view of Official notice. Goodwin *never mentions* the use of semaphores anywhere in its written description and, consequently, it is not reasonable to suggest that one of ordinary skill in the art would have been motivated to combine Goodwin and Holt to obtain a hardware semaphore unit. Such motivation is even more improbable given that Holt does not teach a hardware semaphore unit. As shown above, Holt teaches a software implementation of a semaphore unit. Therefore, Applicant respectfully submits that the rejections of claims 1-3 should be withdrawn. Therefore, Applicant respectfully submits that the rejections of claims 1-3, 8-9, 11-13, 18-19, 21-22, 24-25 and 27 should be withdrawn.

Claims 1-2, 11-12, 21 and 24 stand rejected under 35 U.S.C. 103(b) (Applicant reads 35 U.S.C. 103(a)) as allegedly being unpatentable over U.S. Patent No. 5,081,575 to Hiller et al. (Hiller) in view of Holt. Hiller *never mentions* the use of semaphores anywhere in its written description and it is not reasonable to suggest that one of ordinary skill in the art would have been motivated to combine Hiller and Holt to obtain a hardware semaphore unit. Such motivation is even more improbable given that Holt does not teach a hardware semaphore unit. As shown above, Holt teaches a software implementation of a semaphore unit. Therefore, Applicant respectfully submits that the rejections of claims 1-2, 11-12, 21 and 24 should be withdrawn.

For at least the reasons presented above, Applicant respectfully submits that the rejections of the independent claims 1, 11, 21, 24 and 27 are improper and should be withdrawn.


Dependent claims 2-10, 12-20, 22-24 and 25-26 stand rejected under 35 U.S.C. 103(a) stand rejected as being obvious over some combination of MacLellan-Srini-Goodwin-Hiller and Holt. These claims depend ultimately from amended independent claims 1, 11, 21 and 27 and thus are patentable for at least the reasons presented above. The deficiencies noted above are not cured by any other alleged combinations of the cited art. Accordingly, Applicant respectfully submits that the rejections of claims 2-10, 12-20, 22-24 and 25-26 should be withdrawn.

CONCLUSION

All objections and rejections having been addressed, and in view of the foregoing, the claims are believed to be in form for allowance, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he or she is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted


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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via facsimile to (571) 273-8300, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22212-1450 on August 29, 2005.

By: 

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